3. **Discharge Prohibition III.C. (No bypasses except under the conditions at 40 CFR 122.41(m)(4)(i)(A), (B) and (C)):** This prohibition is based on 40 CFR 122.41(m)(4). This prohibition grants bypass of peak wet weather flows above 24 MGD at the Richmond plant that are recombined with secondary treatment flows and discharged at the combined outfall which met the conditions at 40 CFR 122.41(m)(4)(i)(A)-(C). Bypasses are prohibited at the WCWD plant.

Background

During significant storm events, these high volumes can overwhelm certain parts of the wastewater treatment process and may cause damage or failure of the system. Operators of wastewater treatment plants must manage these high flows to both ensure the continued operation of the treatment process and to prevent backups and overflows of raw wastewater in basements or on city streets. USEPA recognized that peak wet weather flow diversions around secondary treatment units at POTW treatment plants serving separate sanitary sewer conveyance systems may be necessary in some circumstances.

In December 2005, USEPA invited public comment on its proposed Peak Wet Weather Policy that provides interpretation that 40 CFR 122.41(m) applies to wet weather diversions that are recombined with flow from the secondary treatment, and guidance by which its NPDES permit may be approved by the Regional Water Board. This policy requires that dischargers must still meet all the requirements of NPDES permits, and encourages municipalities to make investments in ongoing maintenance and capital improvements to improve their system's long-term performance.

Criteria of 40 CFR 122.41(m)(4)(i)(A)-(C)

USEPA's Peak Wet Weather policy states that "If the criteria of 40 CFR 122.41(m)(4)(i)(A)-(C) are met, the Regional Water Board can approve peak wet weather diversions that are recombined with flow from the secondary treatment. The criteria of 40 CFR 122.41(m)(4)(i) (Federal Standard Provisions, Attachment D) are (A) bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; (B) there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime; and (C) the City of Richmond and RMSD submitted notice to the Regional Water Board as required under Federal Standard Provision – Permit Compliance I.G.5.

On September 27, 2007, the City of Richmond and RMSD submitted a no feasible alternatives analysis showing that at this time, there are no feasible alternatives to blending under certain high flow conditions at the Richmond plant. Blending isn't necessary at the WCWD treatment plant. For the calendar years 2002 through 2006, the Richmond plant blended 62 times for an average of about 12.4 times per year. The average volume of blended wastewater was about 7.1 million gallons per blending event, or about 88 million gallons per year. These blending events occurred as a result of high rates of inflow and infiltration (I/I) in the collection system during heavy rainfall. The City of Richmond and RMSD's analysis concluded that improvements to the treatment plant would have little effect on the need for blending because of the I/I problem. Therefore, the City of

Richmond and RMSD are focusing their efforts on repairing and replacing collection system pipes to reduce wet weather blending events. The City of Richmond is currently in the process of evaluating the condition of its pipes using closed-circuit TV to determine which pipes are in the most need of repair. It has allocated $20 million to be spent during the next five years to repair the sanitary sewer system.

The City of Richmond and RMSD have satisfied the criteria of 40 CFR 122.41 (m)(4)(i)(A-C). Bypasses are necessary to prevent severe property damage when flows exceed the capacity of the secondary treatment. The City of Richmond and RMSD have analyzed alternatives to bypassing and has determined that no feasible alternative exists at this time. The City of Richmond and RMSD have submitted notice to the Regional Water Board as required under Federal Standard Provision – Permit Compliance I.G.5.

4. **Discharge Prohibition III.D. (average dry weather flow not to exceed dry weather design capacity):** This prohibition is based on the historic and tested reliable treatment capacity of the treatment plant. Exceedance of this design, average dry weather flow capacity may result in lowering the reliability of achieving compliance with water quality requirements.

5. **Discharge Prohibition III.E. (No sanitary sewer overflows (SSO) to waters of the United States):** The Discharge Prohibition No. 15 from Table 4-1 of the Basin Plan, and the Clean Water Act prohibits the discharge of wastewater to surface waters except as authorize under an NPDES permit. POTWs must achieve secondary treatment, at a minimum, and any more stringent limitations that are necessary to achieve water quality standards. (33U.S.C. §1311(b)(1)(B) and (C).) Thus, an SSO that results in the discharge of raw sewage, or sewage not meeting secondary treatment, to waters of the United States is prohibited under the Clean Water Act and the Basin Plan.

B. Technology-Based Effluent Limitations

1. Scope and Authority

The Code of Federal Regulations (CFR) at 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards. This Order includes technology-based effluent limitations based on Secondary Treatment Standards at 40 CFR §133. Permit effluent limitations for conventional pollutants are technology-based. Technology-based effluent limitations are put in place to ensure that full secondary treatment is achieved by the wastewater treatment facility, as required under 40 CFR §133.102. Effluent limitations for these conventional pollutants are defined by the Basin Plan, Table 4-2. Further, these conventional effluent limits are the same as those from the previous permit for the following constituents, except settleable solids which is no longer required per the 2004 Basin Plan amendment:

- Biochemical Oxygen Demand (BOD),
- BOD percent removal,
- Total suspended solids (TSS),

- TSS percent removal,
- pH,
- Oil and grease, and
- Total chlorine residual.

2. Applicable Technology-Based Effluent Limitations

Technology-based effluent limitations are summarized below.

Table F-7. Summary of Technology-based Effluent Limitations

Parameter	Compliance Point	Units	Effluent Limitations				
			Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand (BOD)		mg/L	30	45	--	--	--
Total Suspended Solids (TSS)		mg/L	30	45	--	--	--
Oil and Grease		mg/L	10	--	20	--	--
pH		standard units	--	--	--	6.0	9.0
Total Coliform Bacteria		MPN/ 100 ml	--	240	--	--	10000
Total Chlorine Residual		mg/L	--	--	--	0.0	0.0

a. *BOD.* This effluent limitation is unchanged from the previous permit, and is based on the Basin Plan (Chapter 4, Table 4-2).

b. *TSS.* This effluent limitation is unchanged from the previous permit, and is based on the Basin Plan (Chapter 4, Table 4-2).

c. *pH.* This effluent limitation is unchanged from the previous permit, and is based on the Basin Plan (Chapter 4, Table 4-2). Pursuant to 40 CFR 401.17, pH effluent limitations under continuous monitoring, the Dischargers shall be in compliance with the pH limitation specified herein, provided that both of the following conditions are satisfied: (i) The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (ii) No individual excursion from the range of pH values shall exceed 60 minutes.

d. *Oil and grease.* This effluent limitation is based on the Basin Plan (Chapter 4, Table 4-2).

e. *Total Chlorine Residual.* This effluent limitation is based on the Basin Plan (Chapter 4, Table 4-2).

f. *BOD and TSS Percent Removal* The average monthly percent removal of BOD and TSS

shall not be less than 85 percent. Demonstration of compliance for removal rates will be based upon concentrations, instead of loads as was in the previous permit, consistent with 40CFR 133.102.

g. *Total Coliform Bacteria.* The five-sample median total coliform density shall not exceed 240 MPN/100 mL and the daily maximum value shall not exceed 10,000 MPN/100mL. These limits are based on the Basin Plan (Chapter 4, Table 4-2).

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The WQC and WQOs applicable to the receiving waters for this discharge are from the Basin Plan; the California Toxics Rule (CTR), established by USEPA at 40 CFR §131.38; and the National Toxics Rule (NTR), established by USEPA at 40 CFR §131.36. Some pollutants have WQC/WQOs established by more than one of these three sources.

a. *Applicable Beneficial Uses.* Beneficial uses applicable to Central San Francisco Bay are from the Basin Plan and are as follows:

Table F-8. Basin Plan Beneficial Uses of Central San Francisco Bay

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Central San Francisco Bay	Ocean Commercial and Sport Fishing (COMM) Estuarine Habitat (EST) Industrial Service Supply (IND) Fish Migration (MIGR) Navigation (NAV) Industrial Process Water Supply (PROC) Preservation of Rare and Endangered Species (RARE) Water Contact Recreation (REC1) Non-contact Water Recreation (REC2) Shellfish Harvesting (SHELL) Fish Spawning (SPWN) Wildlife Habitat (WILD)

b. The WQOs/WQC applicable to the receiving water of this discharge are from the Basin Plan, CTR, and NTR.

(1) **Basin Plan.** The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, lead, mercury, nickel, silver, zinc, and cyanide. The narrative toxicity objective states in part that "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms." The bioaccumulation objective states in part that "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered." Effluent limitations and provisions contained in this Order are designed, based on available information, to implement these objectives.

(2) **CTR.** The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to all inland surface waters and enclosed bays and estuaries of the San Francisco Bay Region, although Tables 3-3 and 3-4 of the Basin Plan include numeric objectives for certain of these priority toxic pollutants, which supersede criteria of the CTR (except in the South Bay south of the Dumbarton Bridge).

(3) **NTR.** The NTR establishes numeric aquatic life criteria for selenium, numeric aquatic life and human health criteria for cyanide, and numeric human health criteria for 34 toxic organic pollutants for waters of San Francisco Bay upstream to, and including Suisun Bay and the Delta. These criteria of the NTR are applicable to Central San Francisco Bay, the receiving water for these Dischargers.

c. Where RP exists, but numeric WQOs/WQC have not been established or updated in the Basin Plan, CTR, or NTR, 40 CFR §122.44(d) and Chapter 4 of the Basin Plan specify that WQBELs may be set based on USEPA criteria, supplemented where necessary by other relevant information, to attain and maintain narrative WQC to fully protect designated beneficial uses. This Fact Sheet discusses the specific bases and rationales for the effluent limitations, and is incorporated as part of the Order.

d. *Basin Plan Amendment.* On January 21, 2004, the Regional Water Board adopted Resolution No. R2-2004-0003 amending the Basin Plan to (1) update the dissolved WQOs for metals to be identical to the CTR WQC except for cadmium; (2) to change the Basin Plan definitions of marine, estuarine and freshwater to be consistent with the CTR definitions; (3) to update NPDES implementation provisions to be consistent with the SIP; (4) to remove settleable matter effluent limitations for POTWs, and other editorial changes. Subsequent to approval by the State Water Board and the Office of Administrative Law (OAL) (July 22, 2004, and October 4, 2004, respectively), USEPA approved the amendment on January 5, 2005.

e. *Basin Plan and CTR Receiving Water Salinity Policy.* The Basin Plan and CTR state that the salinity characteristics (i.e., freshwater versus saltwater) of the receiving water shall be considered in determining the applicable WQOs/WQC. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than 1 ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to waters with salinities in between these two categories, or tidally influenced fresh waters that support estuarine beneficial uses, the criteria shall be the lower of the salt- or freshwater criteria (the freshwater criteria for some metals are calculated based on ambient hardness) for each substance.

   The receiving water for these Dischargers, Central San Francisco Bay, is a salt water environment based on salinity data generated through the Regional Monitoring Program (RMP) and the Richardson Bay, Point Isabel, and Yerba Buena Island sampling stations for the period February 1993 – August 2001. In that period, the receiving water's minimum salinity was 11 ppt, its maximum salinity was 31 ppt, and its average salinity was 23 ppt. As salinity was greater than 10 ppt in 100 percent of the receiving water samples, the saltwater criteria from the Basin Plan, NTR, and CTR are applicable to this discharge.

f. *Copper/Nickel Translators.* Because NPDES regulations at 40 CFR §122.45 (c) require effluent limitations for metals to be expressed as total recoverable metal, and applicable water quality criteria for the metals are typically expressed as dissolved metal, factors or translators must be used to convert metals concentrations from dissolved to total recoverable and vice versa. In the CTR, USEPA establishes default translators which are used in NPDES permitting activities; however, site-specific conditions such as water temperature, pH, suspended solids, and organic carbon greatly impact the form of metal (dissolved, filterable, or otherwise) which is present and therefore available in the water to cause toxicity. In general, the dissolved form of the metals is more available and

more toxic to aquatic life than filterable forms. Site-specific translators can be developed to account for site-specific conditions, thereby preventing exceedingly stringent or under protective water quality objectives.

For deep water discharges to Central San Francisco Bay, the Regional Water Board staff are using the following translators for copper and nickel, based on recommendations of the Clean Estuary Partnership's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005). In determining the need for and calculating WQBELs for all other metals, the Regional Water Board staff has used default translators established by the USEPA in the CTR at 40 CFR §131.38 (b) (2), Table 2.

Table F-9. Metal Translators

Cu and Ni Translators for Deepwater Discharges to Central San Francisco Bay	Copper		Nickel	
	AMEL Translator	MDEL Translator	AMEL Translator	MDEL Translator
	0.74	0.88	0.65	0.85

3. Determining the Need for WQBELs

NPDES regulations at 40 CFR §122.44 (d) (1) (i) require permits to include WQBELs for all pollutants (non-priority or priority) "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any narrative or numeric criteria within a State water quality standard" (have Reasonable Potential). Thus, assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required. For non-priority pollutants, Regional Water Board staff used available monitoring data, receiving water's designated uses, and/or previous permit pollutant limitations to determine Reasonable Potential as described in Sections 3.a. and 3.b. below. For priority pollutants, Regional Water Board staff used the methods prescribed in Section 1.3 of the SIP to determine if the discharge from these Dischargers demonstrate reasonable potential as described below.

a. Reasonable Potential Analysis

Using the methods prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent data to determine if the discharge from the WCWD plant or the Richmond plant demonstrates Reasonable Potential. The Reasonable Potential Analysis (RPA) compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQC from the USEPA, the NTR, and the CTR. The Basin Plan objectives and CTR criteria are shown in Appendix A of this Fact Sheet.

b. Reasonable Potential Methodology

Using the methods and procedures prescribed in Section 1.3 of the SIP, Regional Water Board staff analyzed the effluent and background data and the nature of facility

operations to determine if the discharge has reasonable potential to cause or contribute to exceedances of applicable SSOs or WQC. Appendix A of this Fact Sheet shows the stepwise process described in Section 1.3 of the SIP.

The RPA projects a maximum effluent concentration (MEC) for each pollutant based on existing data, while accounting for a limited data set and effluent variability. There are three triggers in determining Reasonable Potential.

(1) The first trigger is activated if the MEC is greater than the lowest applicable WQO (MEC ≥ WQO), which has been adjusted, if appropriate, for pH, hardness, and translator data. If the MEC is greater than the adjusted WQO, then that pollutant has reasonable potential, and a WQBEL is required.

(2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO (B ≥ WQO), and the pollutant is detected in any of the effluent samples.

(3) The third trigger is activated if a review of other information determines that a WQBEL is required to protect beneficial uses, even though both MEC and B are less than the WQO/WQC. A limitation may be required under certain circumstances to protect beneficial uses.

c. Effluent Data

The Regional Water Board's August 6, 2001 letter titled *Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy* (hereinafter referred to as the Regional Water Board's August 6, 2001 Letter) to all permittees, formally required the Dischargers (pursuant to Section 13267 of the CWC) to initiate or continue to monitor for the priority pollutants using analytical methods that provide the best detection limits reasonably feasible. Regional Water Board staff analyzed this effluent data and the nature of the discharge to determine if the discharge has Reasonable Potential. The RPA was based on the effluent monitoring data collected by the Dischargers from January 2004 through December 2006 for most inorganic pollutants, and from February 2002 through September 2006 for most organic pollutants.

d. Ambient Background Data

Ambient background values are used in the RPA and in the calculation of effluent limitations. For the RPA, ambient background concentrations are the observed maximum detected water column concentrations. The SIP states that for calculating WQBELs, ambient background concentrations are either the observed maximum ambient water column concentrations or, for criteria/objectives intended to protect human health from carcinogenic effects, the arithmetic mean of observed ambient water concentrations. The RMP station at Yerba Buena Island, located in the Central Bay, has been monitored for most of the inorganic (CTR constituent numbers 1–15) and some of the organic (CTR constituent numbers 16–126) toxic pollutants, and this data from the

RMP was used as background data in performing the RPA for these Dischargers.

Not all the constituents listed in the CTR have been analyzed by the RMP. These data gaps are addressed by the Regional Water Board's August 6, 2001 Letter. The Regional Water Board's August 6, 2001 Letter formally requires dischargers (pursuant to Section 13267 of the California Water Code) to conduct ambient background monitoring and effluent monitoring for those constituents not currently monitored by the RMP and to provide this technical information to the Regional Water Board.

On May 15, 2003, a group of several San Francisco Bay Region dischargers (known as the Bay Area Clean Water Agencies, or BACWA) submitted a collaborative receiving water study, entitled the *San Francisco Bay Ambient Water Monitoring Interim Report*. This study includes monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. The RPA was conducted and the WQBELs were calculated using RMP data from 1993 through 2003 for inorganics and organics at the Yerba Buena Island RMP station, and additional data from the BACWA *Ambient Water Monitoring: Final CTR Sampling Update Report* for the Yerba Buena Island RMP station. The Dischargers may utilize the receiving water study provided by BACWA to fulfill all requirements of the August 6, 2001 letter for receiving water monitoring in this Order.

e. RPA Determination

The MECs, most stringent applicable WQOs/WQC, and background concentrations used in the RPA are presented in the following table, along with the RPA results (yes or no) for each pollutant analyzed. Reasonable potential was not determined for all pollutants, as there are not applicable water quality objectives/criteria for all pollutants, and monitoring data was not available for others. RPA results are shown below. The pollutants that exhibit Reasonable Potential are copper, mercury, selenium, nickel, cyanide, bis(2-ethylhexyl)phthalate, 4,4-DDD, heptachlor, and dioxin–TEQ.

Table F-10. RPA Results for Discharge Point No. 001

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
1	Antimony	**0.7**	4300	1.8	No
2	Arsenic	**11**	36	2.46	No
3	Beryllium	Not Available	No Criteria	0.215	Ud
4	Cadmium	**0.16**	3.4	0.13	No
5a	Chromium (III)	**1.8**	644	Not Available	No
5b	Chromium (VI)	Not Available	11	4.4	Cannot Determine
6	Copper	**15**	4.2	2.55	**Yes**
7	Lead	**2.4**	8.5	0.80	No
8	Mercury (303d listed)	**0.032**	0.025	0.0086	**Yes**
9	Nickel	**13**	13	3.7	**Yes**
10	Selenium	**9.0**	5.0	0.39	**Yes**
11	Silver	**0.15**	2.2	0.052	No

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
12	Thallium	Not Available	6.3	0.21	Cannot Determine
13	Zinc	**52**	86	5.1	No
14	Cyanide	**13**	1.0	< 0.4	**Yes**
15	Asbestos	Not Available	No Criteria	Not Available	Ud
16	2,3,7,8-TCDD (303d listed)	< 6.37 E-07	1.4E-08	Not Available	No
16-TEQ	Dioxin TEQ (303d listed)	**1.6 E-08**	1.4E-08	7.10E-08	**Yes**
17	Acrolein	< 0.5	780	< 0.5	No
18	Acrylonitrile	< 0.33	0.66	0.03	No
19	Benzene	< 0.03	71	< 0.05	No
20	Bromoform	**28**	360	< 0.5	No
21	Carbon Tetrachloride	< 0.04	4.4	0.06	No
22	Chlorobenzene	< 0.03	21,000	< 0.5	No
23	Chlorodibromomethane	**7.1**	34	< 0.05	No
24	Chloroethane	**0.07**	No Criteria	< 0.5	Ud
25	2-Chloroethylvinyl ether	< 0.1	No Criteria	< 0.5	Ud
26	Chloroform	**38**	No Criteria	< 0.5	Ud
27	Dichlorobromomethane	**23**	46	< 0.05	No
28	1,1-Dichloroethane	< 0.04	No Criteria	< 0.05	Ud
29	1,2-Dichloroethane	< 0.04	99	0.04	No
30	1,1-Dichloroethylene	< 0.05	3.2	< 0.5	No
31	1,2-Dichloropropane	< 0.03	39	< 0.05	No
32	1,3-Dichloropropylene	< 0.02	1,700	Not Available	No
33	Ethylbenzene	< 0.04	29,000	< 0.5	No
34	Methyl Bromide	< 0.05	4,000	< 0.5	No
35	Methyl Chloride	**0.7**	No Criteria	< 0.5	Ud
36	Methylene Chloride	**0.7**	1,600	0.5	No
37	1,1,2,2-Tetrachloroethane	< 0.04	11	< 0.05	No
38	Tetrachloroethylene	**1.6**	8.9	< 0.05	No
39	Toluene	**0.94**	200,000	< 0.3	No
40	1,2-Trans-Dichloroethylene	< 0.05	140,000	< 0.5	No
41	1,1,1-Trichloroethane	< 0.03	No Criteria	< 0.5	Ud
42	1,1,2-Trichloroethane	< 0.03	42	< 0.05	No
43	Trichloroethylene	**0.8**	81	< 0.5	No
44	Vinyl Chloride	< 0.05	525	< 0.5	No
45	2-Chlorophenol	< 0.2	400	< 1.2	No
46	2,4-Dichlorophenol	< 0.3	790	< 1.3	No
47	2,4-Dimethylphenol	**0.29**	2,300	< 1.3	No
48	2-Methyl- 4,6-Dinitrophenol	< 0.9	765	< 1.2	No
49	2,4-Dinitrophenol	< 0.6	14,000	< 0.7	No
50	2-Nitrophenol	< 0.1	No Criteria	< 1.3	Ud
51	4-Nitrophenol	< 0.6	No Criteria	< 1.6	Ud
52	3-Methyl 4-Chlorophenol	< 0.2	No Criteria	< 1.1	Ud
53	Pentachlorophenol	< 0.9	7.9	< 1.0	No
54	Phenol	Not Available	4,600,000	< 1.3	Cannot Determine
55	2,4,6-Trichlorophenol	**0.33**	6.5	< 1.3	No
56	Acenaphthene	< 0.03	2,700	0.0015	No
57	Acenaphthylene	< 0.02	No Criteria	0.00053	Ud
58	Anthracene	< 0.0034	110,000	0.0005	No
59	Benzidine	< 01.0	0.00054	< 0.0015	No
60	Benzo(a)Anthracene	< 0.0058	0.049	0.0053	No

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
61	Benzo(a)Pyrene	< 0.0079	0.049	0.00029	No
62	Benzo(b)Fluoranthene	< 0.0079	0.049	0.0046	No
63	Benzo(ghi)Perylene	< 0.012	No Criteria	0.0027	Ud
64	Benzo(k)Fluoranthene	< 0.02	0.049	0.0015	No
65	Bis(2-Chloroethoxy)Methane	< 0.1	No Criteria	< 0.3	Ud
66	Bis(2-Chloroethyl)Ether	< 0.2	1.4	< 0.3	No
67	Bis(2-Chloroisopropyl)Ether	< 0.6	170,000	Not Available	No
68	Bis(2-Ethylhexyl)Phthalate	**7.7**	5.9	< 0.5	**Yes**
69	4-Bromophenyl Phenyl Ether	< 0.1	No Criteria	< 0.23	Ud
70	Butylbenzyl Phthalate	**0.2**	5,200	< 0.52	No
71	2-Chloronaphthalene	< 0.2	4,300	< 0.3	No
72	4-Chlorophenyl Phenyl Ether	< 0.2	No Criteria	< 0.3	Ud
73	Chrysene	< 0.0036	0.049	0.0024	No
74	Dibenzo(a,h)Anthracene	< 0.0054	0.049	0.00064	No
75	1,2-Dichlorobenzene	**0.08**	17,000	< 0.8	No
76	1,3-Dichlorobenzene	< 0.03	2,600	< 0.8	No
77	1,4-Dichlorobenzene	**1.1**	2,600	< 0.8	No
78	3,3 Dichlorobenzidine	< 0.1	0.077	< 0.001	No
79	Diethyl Phthalate	**0.38**	120,000	< 0.24	No
80	Dimethyl Phthalate	< 0.1	2,900,000	< 0.24	No
81	Di-n-Butyl Phthalate	**0.29**	12,000	< 0.5	No
82	2,4-Dinitrotoluene	< 0.1	9.1	< 0.27	No
83	2,6-Dinitrotoluene	< 0.2	No Criteria	< 0.29	Ud
84	Di-n-Octyl Phthalate	< 0.1	No Criteria	< 0.38	Ud
85	1,2-Diphenylhydrazine	< 0.6	0.54	0.0037	No
86	Fluoranthene	< 0.009	370	0.011	No
87	Fluorene	< 0.0073	14,000	0.00208	No
88	Hexachlorobenzene	< 0.0015	0.00077	0.0000202	No
89	Hexachlorobutadiene	< 0.4	50	< 0.3	No
90	Hexachlorocyclopentadiene	< 0.4	17,000	< 0.31	No
91	Hexachloroethane	< 0.4	8.9	< 0.2	No
92	Indeno(1,2,3-cd)Pyrene	< 0.0045	0.049	0.004	No
93	Isophorone	< 0.1	600	< 0.3	No
94	Naphthalene	**0.1**	No Criteria	0.0023	Ud
95	Nitrobenzene	< 0.1	1,900	< 0.25	No
96	N-Nitrosodimethylamine	< 0.2	8.1	< 0.3	No
97	N-Nitrosodi-n-Propylamine	< 0.1	1.4	< 0.001	No
98	N-Nitrosodiphenylamine	< 0.1	16	< 0.001	No
99	Phenanthrene	< 0.0063	No Criteria	0.0061	Ud
100	Pyrene	< 0.0027	11,000	0.0051	No
101	1,2,4-Trichlorobenzene	< 0.3	No Criteria	< 0.3	Ud
102	Aldrin	< 0.0018	0.00014	Not Available	No
103	alpha-BHC	**0.002**	0.013	0.000496	No
104	beta-BHC	< 0.001	0.046	0.000413	No
105	gamma-BHC	< 0.002	0.063	0.0007034	No
106	delta-BHC	< 0.00064	No Criteria	0.000042	Ud
107	Chlordane (303d listed)	< 0.005	0.00059	0.00018	No
108	4,4'-DDT (303d listed)	< 0.0013	0.00059	0.000066	No
109	4,4'-DDE (linked to DDT)	< 0.00097	0.00059	0.000693	No

CTR #	Priority Pollutants	MEC or Minimum DL [a][b] (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background or Minimum DL [a][b] (µg/L)	RPA Results[c]
110	4,4'-DDD	**0.0055**	0.00084	0.000313	Yes
111	Dieldrin (303d listed)	< 0.00077	0.00014	0.000264	No
112	alpha-Endosulfan	< 0.00067	0.0087	0.000031	No
113	beta-Endolsulfan	< 0.00055	0.0087	0.000069	No
114	Endosulfan Sulfate	< 0.00078	240	0.0000819	No
115	Endrin	< 0.00063	0.0023	0.000036	No
116	Endrin Aldehyde	< 0.00042	0.81	Not Available	No
117	Heptachlor	**0.0028**	0.00021	0.000019	Yes
118	Heptachlor Epoxide	< 0.0012	0.00011	0.00002458	No
119-125	PCBs sum (303d listed)	< 0.32	0.00017	Not Available	No
126	Toxaphene	< 0.072	0.0002	Not Available	No
	Tributylin	< 0.00018	0.001	< 0.001	No
	Total PAHs	Not Available	15	0.26	Cannot Determine

[a] The Maximum Effluent Concentration (MEC) or maximum background concentration is the actual detected concentration unless there is a "<" sign before it, in which case the value shown is the minimum detection level.

[b] The MEC or maximum background concentration is "Not Available" when there are no monitoring data for the constituent.

[c] RPA Results = Yes, if MEC > WQO/WQC, or B > WQO/WQC and MEC is detected;
= No, if MEC and B are < WQO/WQC or all effluent data are undetected;
= Undetermined (Ud), if no criteria have been promulgated;
= Cannot Determine, if there are insufficient data.

(1) **Constituents with limited data.** The Dischargers have performed sampling and analysis for the constituents listed in the CTR. This data set was used to perform the RPA. In some cases, Reasonable Potential cannot be determined because effluent data are limited, or ambient background concentrations are not available. The Dischargers will continue to monitor for these constituents in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further RPA will be conducted to determine whether to add numeric effluent limitations to this Order or to continue monitoring.

(2) **Pollutants with no Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate Reasonable Potential; however, monitoring for those pollutants is still required. If concentrations of these constituents are found to have increased significantly, the Dischargers will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

The previous permit (Order No. 01-144) included WQBELs for zinc; however, because the RPA showed that discharges no longer demonstrate a reasonable potential to cause or contribute to exceedances of applicable water quality criteria for this pollutant, limitations from the previous permit are not retained.

4. WQBEL Calculations

a. WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential to cause or contribute to exceedances of the WQOs or WQC.

The WQBELs were calculated based on appropriate WQOs/WQC and the appropriate procedures specified in Section 1.4 of the SIP. The WQOs or WQC used for each pollutant with Reasonable Potential is discussed below.

b. Dilution Credit - The SIP provides the basis for the dilution credit granted. The outfall is designed to achieve an initial dilution of at least 10:1. However, review of RMP data (local and Central Bay stations) indicates there is variability in the receiving water, and the hydrology of the receiving water is very complex. Therefore, there is uncertainty associated with the representative nature of the appropriate ambient background data for effluent limit calculations. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis...." The Regional Water Board finds that a conservative 10:1 dilution credit for non-bioaccumulative priority pollutants, except for ammonia and cyanide, and a zero dilution credit for bioaccumulative priority pollutants are necessary for protection of beneficial uses. The detailed basis for each are explained below.

1) For certain bioaccumulative pollutants, based on BPJ, dilution credit is not included in calculating the final WQBELs. This determination is based on available data on concentrations of these pollutants in aquatic organisms, sediment, and the water column. The Regional Water Board placed selenium, mercury, and polychlorinated biphenyls (PCBs) on the CWA Section 303(d) list. U.S. EPA added dioxin and furan compounds, chlordane, dieldrin, and 4,4'-DDT to the CWA Section 303(d) list. Dilution credit is not included for mercury. The following factors suggest that there is no more assimilative capacity in the Bay for these pollutants.

San Francisco Bay fish tissue data show that these pollutants exceed screening levels. The fish tissue data are contained in *Contaminant Concentrations in Fish from San Francisco Bay 1997* (May 1997). Denial of dilution credits for these pollutants is further justified by fish advisories for San Francisco Bay. The Office of Environmental Health and Hazard Assessment (OEHHA) performed a preliminary review of the data from the 1994 San Francisco Bay pilot study, *Contaminated Levels in Fish Tissue from San Francisco Bay*. The results of the study showed elevated levels of chemical contaminants in the fish tissues. Based on these results, OEHHA issued an interim consumption advisory covering certain fish species from the Bay in December 1994. This interim consumption advice was issued and is still in effect owing to health concerns based on exposure to sport fish from the Bay contaminated with mercury, dioxins, and pesticides (e.g., DDT).

For selenium, the denial of dilution credits is based on Bay waterfowl tissue data presented in the California Department of Fish and Game's Selenium Verification Study (1986-1990). This data shows elevated levels of selenium in the livers of waterfowl that feed on bottom dwelling organisms such as clams. Additionally, in 1987 the OEHHA issued an advisory for the consumption of two species of diving duck in the north bay found to have high levels of selenium. This advisory is still in effect.

2) Furthermore, Section 2.1.1 of the SIP states that for bioaccumulative compounds on the 303(d) list, the Regional Water Board should consider whether mass-loading limits should be limited to current levels. The Regional Water Board finds that mass-loading limits are warranted for mercury for the receiving waters for these Dischargers. This is to ensure that these Dischargers do not contribute further to impairment of the narrative objective for bioaccumulation.

3). For non-bioaccumulative constituents (except ammonia and cyanide), a conservative allowance of 10:1 dilution for discharges to the Bay has been assigned for protection of beneficial uses. This 10:1 dilution ratio is based on the Basin Plan's Prohibition No. 1 from Table 4, which prohibits discharges like those from Discharge Point 001 with less than 10:1 dilution. As existing outfall structure at Discharge Point 001 is designed to achieve a minimum 10:1 initial dilution. Limiting the dilution credit is based on SIP provisions in Section 1.4.2. The following outlines the basis for derivation of the dilution credit.

i. A far-field background station is appropriate because the receiving water body (the Bay) is a very complex estuarine system with highly variable and seasonal upstream freshwater inflows and diurnal tidal saltwater inputs. The SIP allows background to be determined on a discharge-by-discharge or water body-by-water body basis (SIP 1.4.3). Consistent with the SIP, Regional Water Board staff has chosen to use a water body-by-water body basis because of the uncertainties inherent in accurately characterizing ambient background in a complex estuarine system on a discharge-by-discharge basis. The Yerba Buena Island Station fits the guidance for ambient background in the SIP compared to other stations in the RMP. The SIP states that background data are applicable if they are "representative of the ambient receiving water column that will mix with the discharge." Regional Water Board staff believes that data from this station are representative of water that will mix with the discharge. Although this station is located near the Golden Gate, it would represent the typical water flushing in and out of the Bay each tidal cycle. For most of the Bay, the waters represented by this station make up a large part of the receiving water that will mix with the discharge.

ii. Because of the complex hydrology of the San Francisco Bay, a mixing zone has not been established. There are uncertainties in accurately determining the mixing zones for each discharge. The models that have been used to predict dilution have not considered the three-dimensional nature of the currents in the estuary resulting from the interaction of tidal flushes and seasonal fresh water outflows. Salt water is heavier than fresh water, colder saltwater from the ocean flushes in twice a day generally under the warmer fresh river waters that flow out annually. When these waters mix and interact, complex circulation patterns occur due to the different densities of these waters. These complex patterns occur throughout the estuary but are most prevalent in the San Pablo, Carquinez Strait, and Suisun Bay areas. The locations change depending on the strength of each tide and the variable rate of delta outflow. Additionally, sediment loads to

the bay from the Central Valley also change on a longer-term basis. These changes can result in changes to the depths of different parts of the Bay making some areas more shallow and/or other areas more deep. These changes affect flow patterns that in turn can affect the initial dilution achieved by a diffuser.

iii. The SIP allows limiting a mixing zone and dilution credit for persistent pollutants (e.g., copper, silver, nickel, and lead). Discharges to the bay are defined in the SIP as incompletely mixed discharges. Thus, dilution credit should be determined using site-specific information. The SIP 1.4.2.2 specifies that the Regional Water Board "significantly limit a mixing zone and dilution credit as necessary... For example, in determining the extent of a mixing zone or dilution credit, the RWQCB shall consider the presence of pollutants in the discharge that are ...persistent." The SIP defines persistent pollutants to be "substances for which degradation or decomposition in the environment is nonexistent or very slow." The pollutants at issue here are persistent pollutants (e.g., copper). The dilution studies that estimate actual dilution do not address the effects of these persistent pollutants in the Bay environment, such as their long-term effects on sediment concentrations.

iv. In calculating WQBELs for total ammonia and cyanide, an actual initial dilution of 25:1 was used based on the Dischargers' dilution study[4]. This is because ammonia and cyanide are not persistent pollutants. The Basin Plan states: "In most instances, ammonia will be diluted or degraded to a nontoxic state fairly rapidly." In the case of cyanide, like ammonia, it quickly disperses and degrades. As such, there is unlikely to be cumulative toxicity effects associated with discharges containing elevated concentrations of ammonia and cyanide. Therefore, granting dilution credits based on actual initial dilution is protective of water quality.

c. Interim Limitations and Compliance Schedules

(1) The SIP and the Basin Plan authorize compliance schedules in a permit if an existing discharger cannot immediately comply with a new and more stringent effluent limitation. Compliance schedules for limitations derived from CTR WQC are based on Section 2.2 of the SIP, and compliance schedules for limitations derived from Basin Plan WQOs and the NTR are based on the Basin Plan. Both the SIP and the Basin Plan require the Dischargers to demonstrate the infeasibility of achieving immediate compliance with the new limitation to qualify for a compliance schedule.

The SIP and Basin Plan require the following documentation to be submitted to the Regional Water Board to support a finding of infeasibility:

-- Descriptions of diligent efforts the Dischargers have made to quantify pollutant levels in the discharge, sources of the pollutant in the waste stream, and the results of those efforts;

[4] Evaluation of the Initial Dilution (45:1) Requirement San Pablo-Richmond Wastewater Outfall (1977). Jones & Stokes Associates and Brown and Caldwell Engineers

-- Descriptions of source control and/or pollutant minimization efforts currently under way or completed;

-- A proposed schedule for additional or future source control measures, pollutant minimization, or waste treatment; and

-- A demonstration that the proposed schedule is as short as practicable.

The Basin Plan provides for a 10-year compliance schedule to implement measures to comply with new standards as of the effective date of those standards. This provision applies to the objectives adopted in the 2004 Basin Plan Amendment. Additionally, the provision authorizes compliance schedules for new interpretations of other existing standards if the new interpretation results in more stringent limitations. Pursuant to State Water Board Order WQ-2007-0004, new interpretations are limited to existing narrative standards, but not numeric standards.

(2) On June 19, 2007 the Dischargers submitted a feasibility study (the 2007 Feasibility Study), asserting it is infeasible to immediately comply with final WQBELs, for selenium, cyanide, dioxin-TEQ, 4,4-DDD and heptachlor. Based on this analysis and the Regional Water Board's own evaluation of feasibility to comply, the Regional Water Board concurs that it is infeasible to achieve immediate compliance with final limitations for selenium, cyanide, dioxin-TEQ, 4,4-DDD and heptachlor. The basis for the Regional Water Board's conclusion for each parameter is provided in Section.IV.C.4.d of this Fact Sheet.

d. WQBEL Calculations for Priority Pollutants

The WQBEL calculations for priority pollutants are summarized below:

Table F-11. Effluent Limitation Calculations for Discharge Point No. E-001-DC

POLLUTANT	Copper		Mercury	Nickel	Selenium	Cyanide		Dioxin-TEQ	Bis(2-ethylhexyl) phthalate	4,4-DDD	Hepta-chlor
Units	µg/L		µg/L	µg/L	µg/L	µg/L		µg/L	µg/L	µg/L	µg/L
Basis and Criteria type	BP & CTR SW Aquatic Life	Alt. limit using SSOs (Dec 04)	BP FW & SW Aquatic Life	BP & CTR SW Aquatic Life	CTR FW & SW Aquatic Life	NTR Criterion for the Bay	Alternate Limits Using Proposed SSOs	Basin Plan HH	CTR HH	CTR HH	CTR HH
CTR Criteria - Acute	5.5	---	2.1	87	20	1.0	9.4	---	---	---	0.053
CTR Criteria - Chronic	4.2	---	0.025	13	5	1.0	2.9	---	---	---	0.0036
SSO Criteria - Acute		3.9									
SSO Criteria - Chronic		2.5									
Water Effects Ratio	2.4	2.4	1	1	1	1	1	1	1	1	1
Lowest WQO (µg/L)	4.19		0.025	13	5.0	1.0	1.0	1.4E-08	5.9	0.00084	0.00021
Site Specific Translator-MDEL	0.88	0.88		0.85							
Site Specific Translator-AMEL	0.74	0.74		0.65							
Dilution Factor (D) (if applicable)	9	9	0	9	0	24	9	0	9	0	9
No. of samples per month	4	4	4	4	4	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	Y	Y	N	N	N	Y
HH criteria analysis required? (Y/N)	N	N	Y	N	N	N	N	Y	N	Y	N
Applicable Acute WQO	13.09	10.64	2.1	87	20	1	9.4				0.053
Applicable Chronic WQO	10.05	8.11	0.025	13	5.0	1	2.9				0.0036
HH criteria			0.05			220,000	220,000	1.4E-08	54.5	8.4E-04	0.0021
Background (max conc for Aquatic Life calc)	2.55	2.55	0.0086	3.73	0.39	0.4	0.4	7.1E-08	0.5	3.1E-04	1.9E-05
Background (avg conc for HH calc)			0.0022		0.153	0.4	0.4	5.0E-08	0.5	9.4E-05	7.5E-06
Is the pollutant bioaccumulative (Y/N)?	N	N	Y	N	Y	N	N	Y	N	Y	Y

	Copper		Mercury	Nickel	Selenium	Cyanide		Dioxin-TEQ	Bis(2-ethylhexyl) phthalate	4,4-DDD	Hepta-chlor
ECA acute	108	83.4	2.1	837	20.0	15.4	90.4				0.5
ECA chronic	77.6	58.1	0.025	92.6	5.0	15.4	25.4				0.019
ECA HH			0.051			5.5E+06	2.2E+06	1.4E-08	54.5	8.4E-04	0.00203
No. of data points <10 or at least 80% reported non detect?	N	N	N	N	N	N	N	Y	N	Y	Y
Ave of data points	7.22	7.22	0.011	6.9	2.11	4.57	4.57		1.70		
SD	1.90	1.90	0.005	1.7	1.83	2.62	2.62		2.19		
CV calculated	0.26	0.26	0.47	0.25	0.87	0.57	0.57		1.29		
CV (Selected) - Final	0.26	0.26	0.47	0.25	0.87	0.57	0.57	0.60	1.29	0.60	0.60
ECA acute mult99	0.57	0.57	0.394	0.58	0.232	0.33	0.33				0.321
ECA chronic mult99	0.74	0.74	0.602	0.75	0.415	0.54	0.54				0.527
LTA acute	61.1	47.2	0.827	485	4.64	5.14	30.2				0.170
LTA chronic	57.7	43.2	0.015	69.7	2.08	8.33	13.7				0.019
Minimum of LTAs	57.7	43.2	0.015	69.7	2.08	5.14	13.7				0.019
AMEL mult95	1.23	1.23	1.42	1.22	1.82	1.53	1.53	1.55	2.21	1.55	1.55
MDEL mult99	1.77	1.77	2.545	1.73	4.31	3.00	3.00	3.11	6.11	3.11	3.11
AMEL (aq life)	71.0	53.2	0.02	85.0	3.78	7.84	21.0				0.03
MDEL(aq life)	102	76.3	0.04	120	8.94	15.4	41.2				0.06
MDEL/AMEL Multiplier	1.44	1.44	1.79	1.42	2.37	1.96	1.96	2.01	2.76	2.01	2.01
AMEL (human hlth)			0.051			5.5E+06	2.2E+06	1.4E-08	54.5	0.001	0.002
MDEL (human hlth)			0.051					2.8E-08	150	0.002	0.004
Minimum of AMEL for Aq. life vs HH	71	53	0.021	85	3.8	7.8	21	1.4E-08	55	0.00084	0.002
Minimum of MDEL for Aq. Life vs HH	102	76	0.038	120	8.9	15.4	41	2.8E-08	150	0.0017	0.004
Current limit in permit (30-d avg)		0.087 (interim)						1.4E-07 (interim)			
Current limits in permit (daily)	17 (interim)	17 (interim)		59	17 (interim)	25 (interim)	25 (interim)				
Final limit - AMEL	**71**	**53**	**0.021**	**34**	**3.8**	**7.8**	**21**	**1.4E-08**	**55**	**0.00084**	**0.0020**
Final limit - MDEL	**102**	**76**	**0.038**	**59**	**8.9**	**15.4**	**41**	**2.8E-08**	**150**	**0.0017**	**0.0041**

e. WQBEL Calculations for Total Ammonia

The WQBEL calculations for total ammonia are summarized below:

Table F-12. Effluent Limitation Calculations for Ammonia at Discharge Point E-001-DC

Pollutant	Total Ammonia Acute	Total Ammonia Chronic
Basis and Criteria type	Basin Plan	Basin Plan
Lowest WQO (mg/L)	3.31	1.28
Dilution Factor (D) (if applicable)	24	24
No. of samples per month	4	30
Aquatic life criteria analysis required? (Y/N)	Y	Y
HH criteria analysis required? (Y/N)	N	N
Background (max conc for Aquatic Life calc)	0.17	0.08
Is the pollutant bioaccumulative (Y/N)? (e.g., Hg)	N	N
ECA acute	79	---
ECA chronic	---	30
No. of data points <10 or at least 80% reported non detect?	N	N
Avg of data points	21	21
SD	7.1	7.1
CV calculated	0.34	0.34
CV (Selected) - Final	0.34	0.34
ECA acute mult99	0.49	---
ECA chronic mult99	---	0.96
LTA acute	38	---
LTA chronic	---	29
AMEL mult95	1.3	1.1
MDEL mult99	2.1	2.1
AMEL (aq life)	50	32
MDEL(aq life)	79	59
Current limit in permit (30-d avg)	---	---
Current limits in permit (daily)	---	---
Final limit – AMEL (mg/L)	---	32
Final limit – MDEL (mg/L)	---	59

f. Summary of Numeric Effluent Limitations for Discharge Point No. E-001-DC

The numeric water quality-based effluent limitations are summarized below:

Table F-13. Summary of Numeric WQBELs

Parameters	Units	Final Limitations	
		MDEL	AMEL
Copper	µg/L	100	71
Mercury	µg/L	0.038	0.021
Selenium	µg/L	8.9	3.8
Nickel	µg/L	59	34
Cyanide	µg/L	15	7.8
Bis(2-ethylhexyl)phthalate	µg/L	150	55
4,4-DDD	µg/L	0.0017	0.00084
Heptachlor	µg/L	0.0041	0.0020
Dioxin-TEQ	µg/L	2.8E-08	1.4E-08
Total Ammonia	mg/L	59	32

g. Calculation of Pollutant Specific WQBELs

1. Copper

(a) *Copper WQC.* The salt water, acute and chronic criteria from the Basin Plan and the CTR for copper for protection of aquatic life are 4.2 and 5.5 µg/L, respectively. These criteria were determined using site-specific translators of 0.74 (chronic) and 0.88 (acute), as recommended by the Clean Estuary Partnership's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005). Site-specific translators were applied to chronic (3.1 µg/L dissolved metal) and acute (4.8 µg/L dissolved metal) criteria of the Basin Plan and the CTR for protection of salt water aquatic life to calculate the criteria of 4.2 µg/L for acute protection and 5.5 µg/L for chronic protection, which were used to perform the RPA and to calculate effluent limitations.

(b) *RPA Results.* This Order establishes effluent limitations for copper, as the maximum observed effluent concentration of 15 µg/L exceeds the applicable water quality criteria for this pollutant, demonstrating reasonable potential by Trigger 1, as defined previously.

(c) *Copper WQBELs.* WQBELs are calculated based on water quality criteria of the CTR. The criteria are expressed as total recoverable metal, using site-specific translators recommended by the Clean Estuary Partnerships' *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2004), and a water effects ratio (WER) of 2.4, as recommended by the Partnership. The following table compares effluent limitations for copper from the expiring Order (Order No. 01-144) with limitations calculated according to SIP procedures, using the two sets of criteria, described above. The newly calculated limitations take into account the deep water nature of the discharge, and therefore, in accordance with the Basin

Plan, are based on an initial dilution of 10:1.

Final Effluent Limitations for Copper		
	AMEL	**MDEL**
Order No. 01-144	---	17 µg/L (interim)
Based on CTR Criteria	71 µg/L	100 µg/L
Based on Site-Specific Objectives	53 µg/L	76 µg/L

Because the MDEL in the previous Order was an interim limitation, it is not being retained by this Order. The newly calculated limitations, based on CTR criteria are being established as final effluent limitations for copper.

(*d*) *Immediate Compliance Feasible.* Statistical analysis of effluent data for copper, collected over the period of January 2004 through December 2006, shows that the 95th percentile (10 µg/L) is less than the AMEL (71 µg/L); the 99th percentile (12 µg/L) is less than the MDEL (102 µg/L); and the mean (7.2 µg/L) is less than the long term average of the projected lognormal distribution of the effluent data set after accounting for effluent variability (58 µg/L). The Regional Water Board concludes, therefore, that immediate compliance with final effluent limitations for copper is feasible, and final effluent limitations will become effective upon adoption of the Order.

(*e*) *Alternate Limitations for Copper.* As described in the Clean Estuary Partnership's *North of Dumbarton Bridge Copper and Nickel Site-Specific Objective Determination* (December 2004), the Regional Water Board is proposing to develop site-specific criteria for copper in non-ocean, marine waters of the Region. Proposed site-specific objectives for copper are 2.5 and 3.9 µg/L as four-day and one-hour average criteria, respectively. If these site-specific objectives for copper are adopted, final effluent limitations, calculated according to Section 1.4 of the SIP, using a WER of 2.4, would be 53 µg/L (AMEL) and 76 µg/L (MDEL). If these site-specific objectives for copper are adopted, the alternate effluent limits will become effective upon the effective date of the SSO, so long as the site-specific objectives and their current justification remain unchanged.

2. Mercury

(*a*) *Mercury WQC.* The most stringent applicable water quality criteria for mercury are established by the Basin Plan for protection of fresh water aquatic life – 2.1 µg/L and 0.025 µg/L, acute and chronic criteria respectively.

(*b*) *RPA Results.* This Order establishes effluent limitations for mercury, because the receiving water for this discharge is 303(d) listed for mercury,

and the Regional Water Board's policy in these circumstances is to find Reasonable Potential by Trigger 3 and establish effluent limitations for discharges to Central San Francisco Bay.

(c) *Mercury WQBELs.* Mercury final WQBELs, calculated according to SIP procedures, are 0.021 µg/L (AMEL) and 0.038 µg/L (MDEL).

(d) *Immediate Compliance Feasible.* Statistical analysis of effluent data for mercury, collected over the period of January 2004 through December 2006, shows that the 95th percentile (0.019 µg/L) is less than the AMEL (0.021 µg/L); the 99th percentile (0.025 µg/L) is less than the MDEL (0.038 µg/L); and the mean (0.011 µg/L) is less than the long term average of the projected lognormal distribution of the effluent data set after accounting for effluent variability (0.015 µg/L). The Regional Board concludes, therefore, that immediate compliance with final effluent limitations for mercury is feasible, and final effluent limitations will become effective upon adoption of the Order.

3. Selenium

(a) *Selenium WQC.* The salt water, acute and chronic criteria from the NTR for seleniuim for protection of aquatic life are 20 and 5 µg/L, respectively.

(b) *RPA Results.* This Order establishes effluent limitations for selenium, as the maximum observed effluent concentration of 9.0 µg/L exceeds the applicable water quality criteria for this pollutant, demonstrating reasonable potential by Trigger 1, as defined previously.

(c) *Selenium WQBELs.* Final WQBELs for selenium, calculated according to SIP procedures, are 3.8 µg/L (AMEL) and 8.9 µg/L (MDEL).

(d) *Immediate Compliance Infeasible.* The Dischargers' Feasibility Study asserts that it cannot immediately comply with final WQBELs for selenium. Statistical analysis of effluent data for selenium, collected over the period of January 2004 through December 2006, show that the 95th percentile is greater than the AMEL (6.4 µg/L > 3.8 µg/L), and therefore, based on this analysis, the Regional Water Board concurs with the Dischargers' assertion of infeasibility to comply with final WQBELs for selenium.

(e) *Need for Cease and Desist Order.* Pursuant to State Water Board Order WQ2007-0004, compliance schedules are not authorized for numeric objectives or criteria that were in effect prior to the SIP. This includes NTR criteria for selenium. Because it is infeasible for the Dischargers to immediately comply with final WQBELs for selenium, the Dischargers will discharge in violation of this Order. Therefore, a cease and desist order will be adopted concurrent with this Order. The Cease and Desist Order is necessary to ensure that the Dischargers achieve compliance. It establishes

time schedules for the Dischargers to complete necessary investigative, preventive, and remedial actions to address its imminent and threatened violations.

4. Cyanide

   (a) Cyanide WQC. The most stringent applicable water quality criteria for cyanide are established by the NTR for protection of salt water aquatic life. The NTR establishes both the saltwater Criterion Maximum Concentration (acute criterion) and the Criterion Chronic Concentration (chronic criterion) at 1.0 µg/L.

   (b) RPA Results. This Order establishes effluent limitations for cyanide because the 13 µg/L MEC exceeds the governing WQC of 1 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a previous finding.

   (c) Cyanide WQBELs. Final WQBELs for cyanide, calculated according to SIP procedures and using actual dilution (25:1), are 7.8 µg/L (AMEL) and 15 µg/L (MDEL).

   (d) Immediate Compliance Infeasible. The Dischargers' Feasibility Study asserts that it cannot immediately comply with final WQBELs for cyanide. Statistical analysis of effluent data for cyanide, collected over the period of January 2004 through December 2006, show that the 95th percentile is greater than the AMEL (8.9 µg/L > 7.8 µg/L), and therefore, based on this analysis, the Regional Water Board concurs with the Dischargers' assertion of infeasibility to comply with final WQBELs for cyanide.

   (e) *Need for Cease and Desist Order.* Pursuant to State Water Board Order WQ2007-0004, compliance schedules are not authorized for numeric objectives or criteria that were in effect prior to the SIP. This includes NTR criteria for cyanide. Because it is infeasible for the Dischargers to immediately comply with final WQBELs for cyanide, the Dischargers will discharge in violation of this Order. Therefore, a cease and desist order will be adopted concurrent with this Order. The Cease and Desist Order is necessary to ensure that the Dischargers achieve compliance. It establishes time schedules for the Dischargers to complete necessary investigative, preventive, and remedial actions to address its imminent and threatened violations.

   (f) Alternative Limit for Cyanide. As described in the Draft Staff Report on Proposed Site-Specific Water Quality Objectives and Effluent Limit Policy for Cyanide for San Francisco Bay, dated December 4, 2006, the Regional Water Board is proposing to develop site-specific criteria for cyanide. In this report, the proposed site-specific criteria for marine waters are 2.9 µg/L as a four-day average, and 9.4 µg/L as a one-hour average. Based on these

assumptions, and the Dischargers' current cyanide data (coefficient of variation of 0.90), final water WQBELs for cyanide will be 41 µg/L as an MDEL, and 21 µg/L as an AMEL. These alternative limits will become effective only if the site-specific objectives adopted for cyanide are based on the same assumptions as in the staff report, dated December 4, 2006.

5. Nickel

(a) Nickel WQC. The salt water, acute and chronic criteria from the Basin Plan and the CTR for nickel for protection of aquatic life are 87 and 13 µg/L, respectively. These criteria were determined using site-specific translators of 0.65 (chronic) and 0.85 (acute), as recommended by the Clean Estuary Partnership's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2005). Site-specific translators were applied to chronic (8.2 µg/L dissolved metal) and acute (74 µg/L dissolved metal) criteria of the Basin Plan and the CTR for protection of salt water aquatic life to calculate the criteria of 13 µg/L for chronic protection and 87 µg/L for acute protection, which were used to perform the RPA.

(b) RPA Results. This Order establishes effluent limitations for nickel because the 13.0 µg/L MEC equals the governing WQC of 13.0 µg/L, demonstrating reasonable potential by Trigger 1, as defined in a previous finding.

(c) Nickel WQBELs. WQBELs for nickel are calculated based on water quality criteria of the CTR and are expressed as total recoverable metal, using site-specific translators recommended by the Clean Estuary Partnership's *North of Dumbarton Bridge Copper and Nickel Development and Selection of Final Translators* (2004). The following table compares final effluent limitations for nickel from the expiring permit (Order No. 01-144) with limitations calculated according to SIP procedures (using a coefficient of variation of 0.25 based on the mean and standard deviation of the effluent data set). The newly calculated limitations take into account the deep water nature of the discharge and, therefore, in accordance with the Basin Plan, are based on a minimum initial dilution of 10 to 1.

Effluent Limitations for Nickel		
	AMEL	MDEL
Order No. 01-144	34 µg/L	59 µg/L
Newly Calculated Limitations	85 µg/L	120 µg/L

(d) Feasibility to Comply. Because limitations of the previous permit were final limitations, and those limitations are more stringent than newly calculated limits for nickel, final effluent limitations for nickel from the expiring permit are retained in this Order. As final limitations from the previous permit are being retained by the Order, an analysis to determine feasibility to comply with final effluent limitations is not appropriate.

(e) Antibacksliding/Antidegradation. Antibacksliding and antidegradation requirements are satisfied as final effluent limitations for nickel are retained from the previous permit.

6. Bis(2-ethylhexyl)phthalate

(a) Bis(2-ethylhexyl)phthalate WQC. The most stringent applicable water quality criteria for bis(2-ethylhexyl)phthalate is 5.9 µg/L based on the CTR.

(b) RPA Results. This Order establishes effluent limitations for bis(2-ethylhexyl)phthalate, as the maximum observed effluent concentration of 7.7 µg/L exceeds the applicable water quality criteria for this pollutant, demonstrating reasonable potential by Trigger 1, as defined previously.

(c) Bis(2-ethylhexyl)phthalate WQBELs. Final WQBELs for bis(2-ethylhexyl)phthalate, calculated according to SIP procedures, are 55 µg/L (AMEL) and 150 µg/L (MDEL).

(d) Immediate Compliance Feasible. Statistical analysis of effluent data for bis(2-ethylhexyl)phthalate, collected over the period of February 2002 through September 2006, shows that the 95th percentile (4.7 µg/L) is less than the AMEL (55 µg/L) and the 99th percentile (8.4 µg/L) is less than the MDEL (150 µg/L). The Regional Water Board concludes, therefore, that immediate compliance with final effluent limitations for bis(2-ethylhexyl)phthalate is feasible, and final effluent limitations will become effective upon adoption of the Order.

(e) Antibacksliding/Antidegradation. Antibacksliding and antidegradation requirements are satisfied, as the previous Order did not establish effluent limitations for bis(2-ethylhexyl)phthalate.

7. 4,4-DDD

(a) 4,4-DDD WQC. The most stringent applicable water quality criteria for 4,4-DDD is 0.00084 µg/L based on the CTR for protection of human health.

(b) RPA Results. This Order establishes effluent limitations for 4,4-DDD, as the maximum observed effluent concentration of 0.0055 µg/L exceeds the applicable water quality criteria for this pollutant, demonstrating reasonable potential by Trigger 1, as defined previously.

(c) 4,4-DDD WQBELs. Final WQBELs for 4,4-DDD, calculated according to SIP procedures, are 0.00084 µg/L (AMEL) and 0.0017 µg/L (MDEL).

(d) Immediate Compliance Infeasible. The Dischargers' Feasibility Study asserts that it cannot immediately comply with final WQBELs for 4,4-DDD. Since

there is insufficient data to calculate a 95th or 99th percentile concentration, feasibility to comply is determined by comparing the maximum effluent concentration (MEC, 0.0055 µg/L) to the AMEL (0.00084 µg/L) and MDEL (0.0017 µg/L). Based on these comparisons, the Regional Water Board concurs with the Dischargers' assertion of infeasibility to comply with final WQBELs for 4,4-DDD.

(e) *Interim Effluent Limitation.* Because there is insufficient data to statistically determine a performance based interim limitation, a performance-based maximum daily interim limitation is established at the minimum level of 0.05 µg/L.

(f) Term of Interim Effluent Limitation. The 4,4-DDD interim effluent limitation shall remain effective until May 18, 2010. The previous permit did not grant an interim limit for 4,4-DDD. As it is not possible for the Dischargers to document compliance because U.S. EPA approved analytical methods cannot quantify 4,4-DDD at low enough levels, it is not possible to determine compliance with final limits. Because SIP §2.1 provides for a maximum five-year compliance schedule, and the Dischargers have not been previously granted such a schedule under §2.1, the Dischargers qualify for such a §2.1 schedule up to the maximum statutory date (May 17, 2010), which is ten years from the effective date of the CTR/SIP. The basis for this compliance schedule is the CTR/SIP.

8. Heptachlor

(a) Heptachlor WQC. The most stringent applicable water quality criterion for heptachlor is 0.00021 µg/L, established by the CTR for protection of human health, when organisms are consumed from the receiving water.

(b) RPA Results. This Order establishes effluent limitations for heptachlor because the MEC of 0.0028 µg/L exceeds the governing WQC of 0.00021 µg/L, demonstrating reasonable potential by Trigger 1, as defined previously.

(c) Heptachlor WQBELs. Final WQBELs for heptachlor, calculated according to SIP procedures, are 0.0020 µg/L and 0.0041 µg/L, the AMEL and MDEL, respectively.

(d) Immediate Compliance Infeasible. The Dischargers' Feasibility Study asserts that the facility cannot immediately comply with final WQBELs for heptachlor. With insufficient effluent data to determine the distribution of the effluent data set or to calculate a mean and standard deviation, feasibility to comply with final effluent limitations is determined by comparing the MEC (0.0028 µg/L) to the AMEL (0.0020 µg/L) and the MDEL (0.0041 µg/L). Based on this comparison, the Regional Water Board concurs with the Dischargers' assertion of infeasibility to comply with final WQBELs for

heptachlor.

(e) *Interim Effluent Limitation.* Because the previous permit did not include a final effluent limitation for heptachlor, and there is insufficient data to statistically determine a performance based interim limitation, a performance-based maximum daily interim limitation is established at the minimum level of 0.01 µg/L.

(f) *Term of Interim Effluent Limitation.* The heptachlor interim effluent limitation shall remain effective until May 18, 2010. The previous permit did not grant an interim limit for heptachlor. As it is not possible for the Dischargers to document compliance because U.S. EPA approved analytical methods cannot quantify heptachlor at low enough levels, it is not possible to determine compliance with final limits. Because SIP §2.1 provides for a maximum five-year compliance schedule, and the Dischargers have not been previously granted such a schedule under §2.1, the Dischargers qualify for such a §2.1 schedule up to the maximum statutory date (May 17, 2010), which is ten years from the effective date of the CTR/SIP. The basis for this compliance schedule is the CTR/SIP.

9. Dioxin-TEQ

(a) *Dioxin-TEQ WQC.* The most stringent applicable water quality criterion for dioxin-TEQ is 1.4×10^{-8} µg/L, which is translated from the narrative bioaccumulation objective established by the Regional Water Board through the Basin Plan. The Basin Plan's narrative bioaccumulation objective is applicable to dioxins and furans, since these constituents accumulate in sediments and bioaccumulate in the fatty tissue of fish and other organisms. The narrative objective is translated into a numeric objective expressed in 2,3,7,8-TCDD equivalents (or dioxin-TEQ) based on the CTR criterion for 2,3,7,8-TCDD and the application of the Toxic Equivalence Factors (TEFs) for dioxin and furans adopted by the World Health Organization in 1998.

(b) *RPA Results.* Because the receiving water is currently listed on the CWA 303(d) list as impaired due to dioxins and furans, and the maximum observed effluent concentration of dioxin–TEQ is 1.6×10^{-7} µg/L, which exceeds the translated water quality objective of 1.4×10^{-8} µg/L, dioxin-TEQ in the discharge has a reasonable potential to contribute to exceedances of the narrative bioaccumulation objective.

(c) *WQBELs.* Concentration-based WQBELs for dioxin–TEQ, using SIP procedures and guidance, are 2.8×10^{-8} and 1.4×10^{-8} µg/L as the maximum daily effluent limit (MDEL) and the average monthly effluent limit (AMEL), respectively. Because dioxin-TEQ is a bioaccumulative pollutant, these limitations are calculated without credit for dilution.

(d) Immediate Compliance Infeasible. Because effluent concentrations of dioxin-TEQ have been measured at levels greater than newly calculated limitations (calculated based on Section 1.4 of the SIP), the Regional Water Board concurs with the Dischargers' assertion of infeasibility.

10. Total Ammonia

(a) Ammonia WQC. The Basin Plan contains WQOs for un-ionized ammonia of 0.025 mg/L as an annual median, and 0.16 mg/L as a maximum north of the Golden Gate Channel. The WQOs are translated from un-ionized ammonia objectives to equivalent total ammonia concentrations since sampling and lab methods are not available to analyze for un-ionized ammonia and because the fraction of total ammonia that is converted to the toxic un-ionized form is dependent on pH, salinity, and temperature of the receiving water.

To translate the Basin Plan's un-ionized ammonia objectives, pH, salinity, and temperature data from March 1993 to August 2001 from the RMP station at Point Isabel were used. The following equation was used to determine the fraction of total ammonia in a discharge that will be converted to the toxic un-ionized phase in receiving waters (U.S. EPA. 1989. *Ambient Water Quality Criteria for Ammonia (Saltwater) -1989.* EPA Publication Number 440/5-88-004).

$$fraction\ of\ NH_3 = \frac{1}{1+10^{(pk-pH)}}$$

where

$$pK = 9.245 + 0.116 * I + 0.0324 * (298 - T) + \frac{0.0415 * (P)}{T + 273}$$

$$\text{I = molal ionic strength of saltwater} = \frac{19.9273 * S}{1000 - 1.005109 * S}$$

S = salinity (parts per thousand)
T = temperature in °C
P = Pressure (one atmosphere)

To convert the Basin Plan's chronic un-ionized ammonia WQO to an equivalent total ammonia concentration, the median un-ionized ammonia fraction at the Richardson Bay monitoring station was used. To convert the Basin Plan's acute un-ionized ammonia WQO to an equivalent total ammonia concentration, the 90th percentile un-ionized ammonia fraction at Richardson Bay was used. Using the median and 90th percentile to translate chronic and acute ammonia WQOs is consistent with U.S. EPA guidance on translating dissolved metal WQOs to total recoverable metal WQOs[5]. The equivalent total ammonia acute and chronic concentrations are 3.31 mg/L and 1.28 mg/L, respectively.

[5] The Metals Translator: Guidance for Calculating a Total Recoverable Limit for a Dissolved Criterion 1996. EPA Publication No. 823-B-96-007

(b) *RPA Results.* The SIP methodology was used to perform RPA and to calculate effluent limitations because it is consistent with the methodology used to calculate WQBELs for other toxic pollutants. This Order establishes effluent limitations for total ammonia, as the maximum observed effluent concentration of 52 mg/L exceeds the applicable water quality criteria for this pollutant, demonstrating reasonable potential by Trigger 1, as defined previously.

(c) *WQBELs.* To calculate total ammonia limits some statistical adjustments were made because the Basin Plan's chronic objective is based on an annual median instead of a 4-day average. For chronic criterion, the SIP assumes an averaging period of 4 days and a monthly sampling frequency of 4 days per month to calculate effluent limits. To use the SIP methodology to calculate effluent limits for a Basin Plan objective that is based on an annual median, an averaging period of 365 days and a monitoring frequency of 30 days per month (the maximum daily sampling frequency in a month since the averaging period for the chronic criterion is longer than 30 days) were used. These statistical adjustments are supported by U.S. EPA's *Water Quality Criteria; Notice of Availability; 1999 Update of Ambient Water Quality Criteria for Ammonia;* published on December 22, 1999 in the Federal Register.

Following the SIP methodology as guidance, the maximum background total ammonia concentration was used to calculate effluent limits based on the acute criterion. For the chronic criterion, the median background total ammonia concentration was used because the Basin Plan's chronic un-ionized ammonia objective is an annual median. Since the time-scale of this objective is over such a long period, it is more representative to use the central tendency of ambient conditions than a daily maximum.

The newly calculated limitations take into account the deep water nature of the discharge and the non-persistent nature of ammonia, and therefore, are based on an initial dilution of 25:1 (model results for average daily dry weather conditions, 16.3 MGD). Concentration-based WQBELs for total ammonia are 59 mg/L as a maximum daily effluent limit (MDEL) and 32 mg/L as an average monthly effluent limit (AMEL), respectively.

5. **Whole Effluent Acute Toxicity**

a. *Permit Requirements.* This Order includes effluent limits for whole-effluent acute toxicity that are unchanged from the previous Order. All bioassays shall be performed according to the USEPA approved method in 40 CFR 136, currently "Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, 5th Edition." The Dischargers are required to use the 5th Edition method for compliance determination upon the effective

date of this Order.

b. *Compliance History.* The Dischargers' acute toxicity monitoring data show that during 2002-2006, with fish survival rates ranged between 60-100%.

c. *Ammonia Toxicity.* If acute toxicity is observed in the future and the Dischargers believe that it is due to ammonia toxicity, this has to be shown through a Toxicity Identification Evaluation (TIE) acceptable to the Executive Officer. If the Dischargers demonstrate to the satisfaction of the Executive Officer that exceedance of the acute toxicity limits is caused by ammonia and that the ammonia in the discharge is in accordance with the ammonia discharge limit, then such toxicity does not constitute a violation of this effluent limit. This is based on the Basin Plan, at page 3-4 under "Un-Ionized Ammonia". If ammonia toxicity is verified in the TIE, the Dischargers may utilize an adjustment protocol approved by the Executive Officer for the routine bioassay testing.

6. Whole Effluent Chronic Toxicity

a. *Permit Requirements.* This permit includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective, and in accordance with USEPA and State Water Board Task Force guidance, and BPJ. This permit includes the Basin Plan narrative toxicity objective as the applicable effluent limit, implemented via monitoring with numeric values as "triggers" to initiate accelerated monitoring and to initiate a chronic toxicity reduction evaluation (TRE) as necessary. The permit requirements for chronic toxicity are also consistent with the CTR and SIP requirements.

b. *Chronic Toxicity Triggers.* This Order includes chronic toxicity triggers, which are three sample median of 10 chronic toxicity (TUc[6]) and a single sample maximum of 20 TUc.

c. *Monitoring History.* The Dischargers' chronic toxicity monitoring data from 2002 through 2006, TUc values ranged from 3.3 to 27.8.

d. *Screening Phase Study.* The Dischargers has prepared a chronic toxicity screening phase study plan and the results of this study have been incorporated herein.

7. Mercury and Selenium Mass Emission Limitations

This Order includes mass-based effluent limitations of 0.72 kg/month for mercury and 15.2 kg/month for selenium. These mass-based effluent limitations are intended to maintain the discharge at current loadings. The mass limit will maintain current loadings until a TMDL is established for San Francisco Bay. The final mercury effluent limitations will be based on the Dischargers' WLA in the TMDL.

[6] A TUc equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC, EC, or NOEC values. Monitoring and TRE requirements may be modified by the Executive Officer in response to the degree of toxicity detected in the effluent or in ambient waters related to the discharge. Failure to conduct the required toxicity tests or a TRE within a designated period shall result in the establishment of effluent limits for chronic toxicity.

The inclusion of performance-based mass limits for bioaccumulative pollutants is consistent with the guidance described in section 2.1.1 of the SIP. Because of their bioaccumulative nature, an uncontrolled increase in the total mass load of these pollutants in the receiving water will have significant adverse impacts on the aquatic ecosystem.

D. Final Effluent Limitations

1. Satisfaction of Anti-Backsliding Requirements

All final and interim effluent limitations in this Order are at least as stringent as the respective final and interim effluent limitations in the previous Order.

2. Satisfaction of Antidegradation Policy

40 CFR 131.12 requires that State water quality standards include an antidegradation policy consistent with federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16, which incorporates the requirements of the federal antidegradation policy. Resolution 68-16 requires that existing water quality is maintained unless degradation is justified based on specific findings.

The permitted discharge is consistent with the antidegradation provision of 40 CFR § 131.12 and State Water Board Resolution 68-16, and the final limitations in this Order are in compliance with antidegradation requirements and meet the requirements of the SIP because these limits hold the Dischargers to performance levels that will not cause or contribute to water impairment or further water quality degradation. This is because this Order does not provide for as increase in the permitted design flow, allow for a reduction in the level of treatment, or increase effluent limitations with the exception of cyanide and copper.

In the case of cyanide, alternate limits based on a site-specific objective will be higher than the current limit if the site-specific objective for cyanide becomes effective during the permit term. However, the standards setting process for cyanide addressed antidegradation, and therefore, an analysis in this permit is unnecessary. As such, there will be no lowering of water quality beyond the current level authorized in the previous permit, which is the baseline by which to measure whether degradation will occur.

For copper, this Order establishes final WQBELs, whereas the previous permit included an interim limit. Although the final WQBELs are above the pervious interim limitation, the concentration of copper discharges is unlikely to change because the Dischargers propose no changes to the treatment process. The Dischargers will maintain current treatment performance for copper because they cannot manipulate their processes to adjust effluent copper levels independently of other treatment parameters. To maintain compliance with other effluent limits, the Dischargers will maintain their current performance with respect to copper. Moreover, pollution minimization requirements are